

(No Model.)

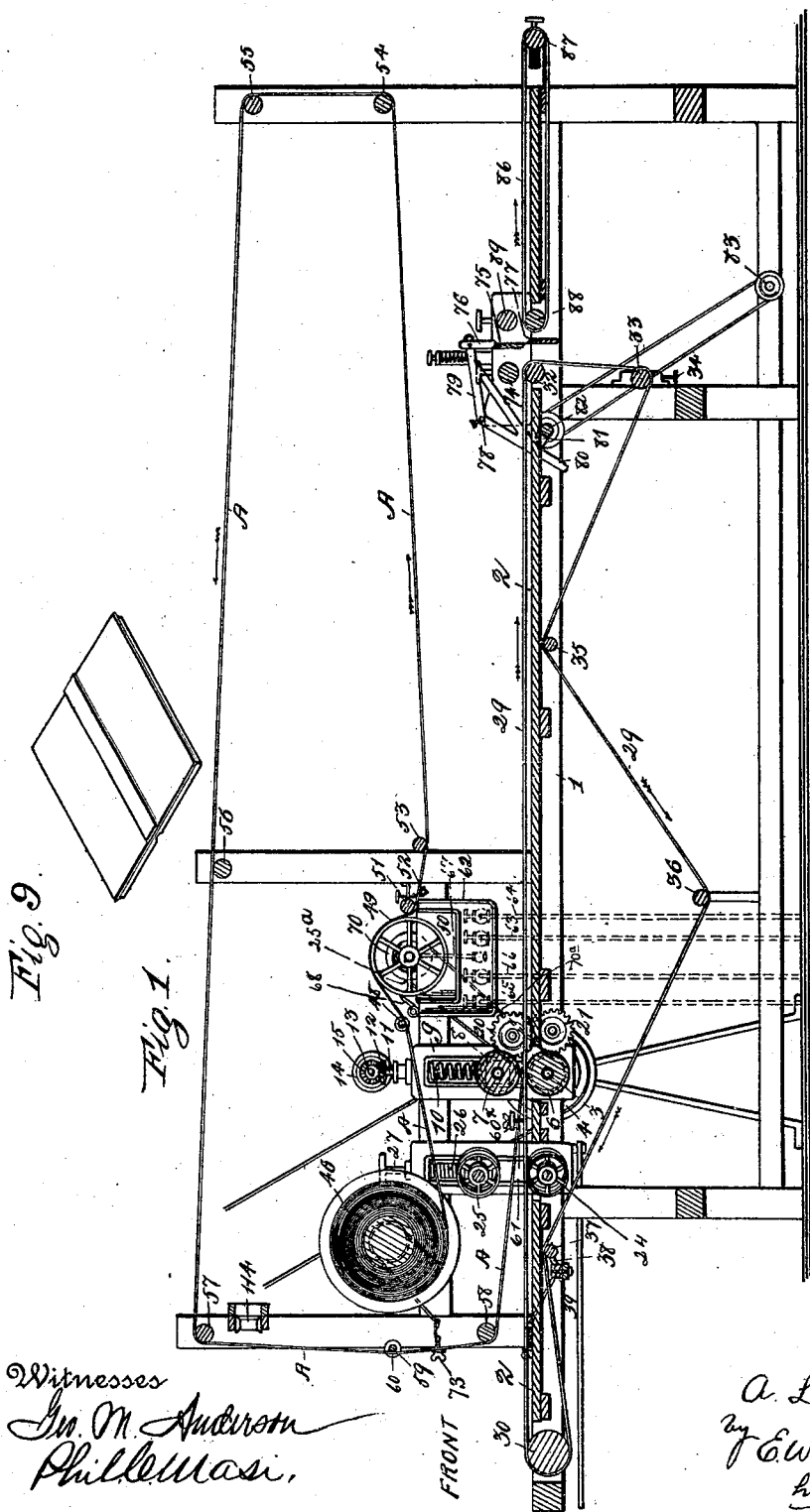
4 Sheets—Sheet 1.

A. L. GARVER.

MACHINE FOR APPLYING BINDING STRIPS TO BOOKS.

No. 542,156.

Patented July 2, 1895.



(No Model.)

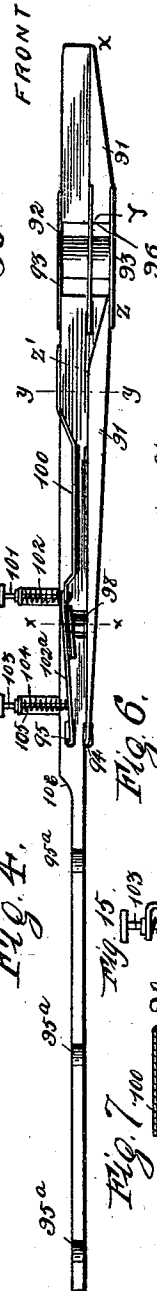
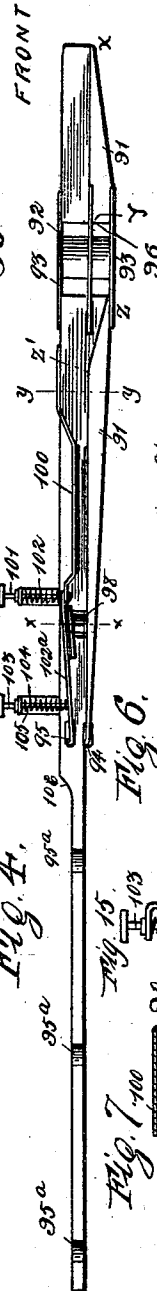
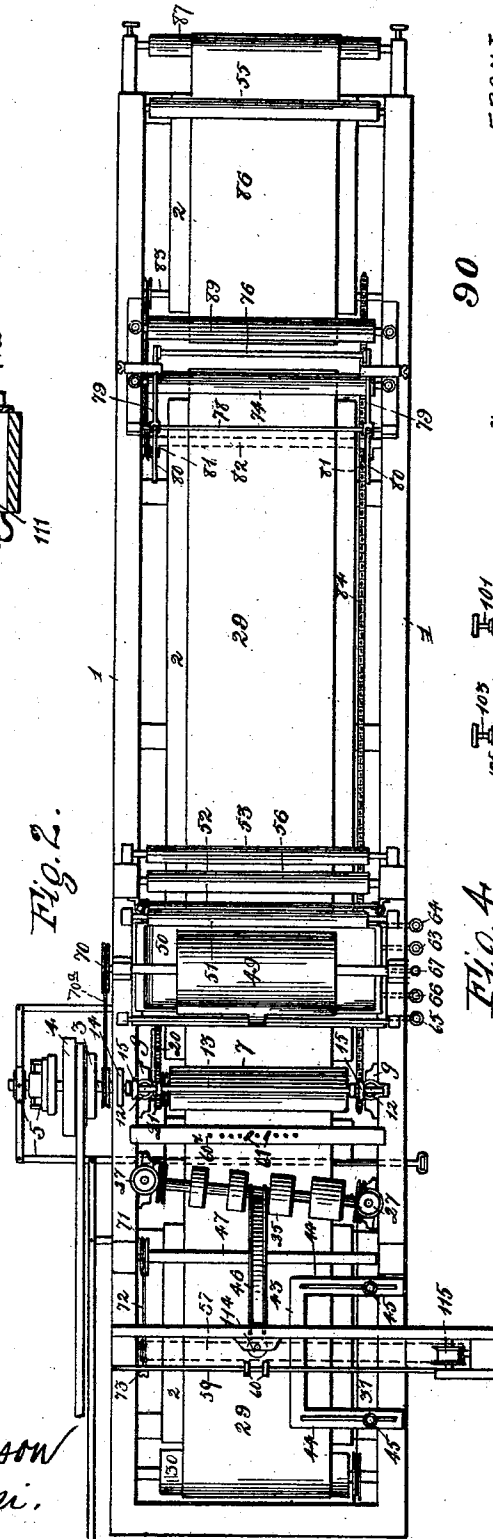
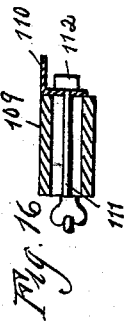
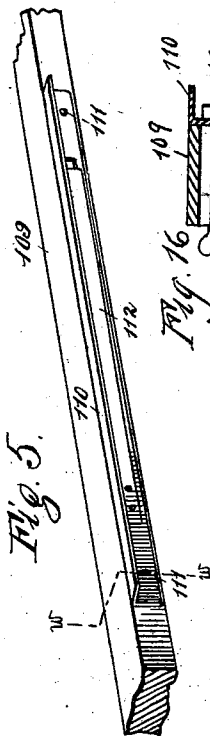
4 Sheets—Sheet 2.

A. L. GARVER.

MACHINE FOR APPLYING BINDING STRIPS TO BOOKS.

No. 542,156.

Patented July 2, 1895.



(No Model.)

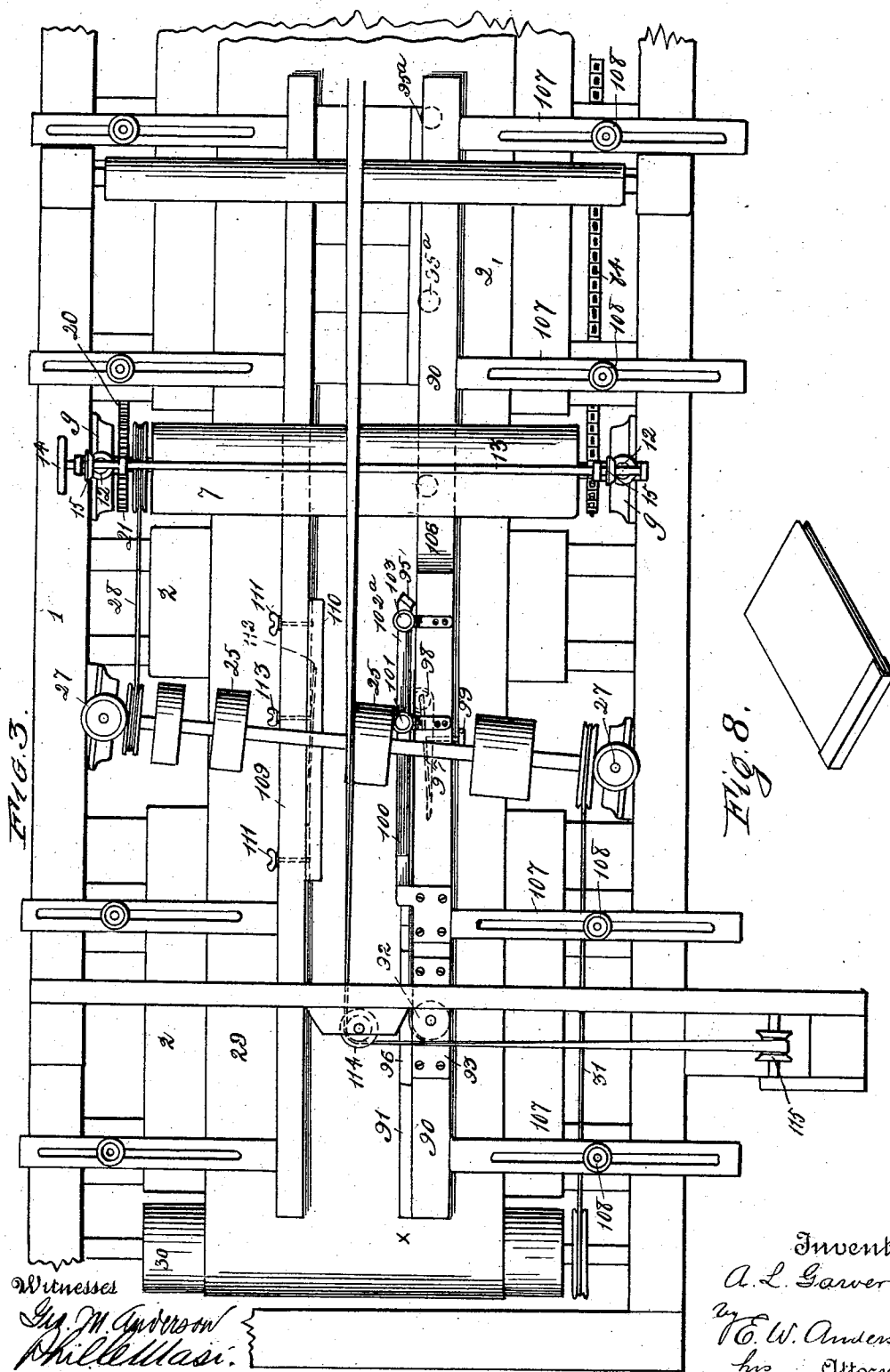
4 Sheets—Sheet 3.

A. L. GARVER.

MACHINE FOR APPLYING BINDING STRIPS TO BOOKS.

No. 542,156.

Patented July 2, 1895.



(No Model.)

4 Sheets—Sheet 4.

A. L. GARVER.

MACHINE FOR APPLYING BINDING STRIPS TO BOOKS.

No. 542,156.

Patented July 2, 1895.

Fig. 12.

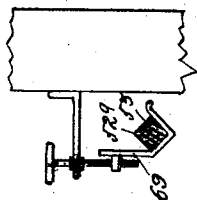


Fig. 13.

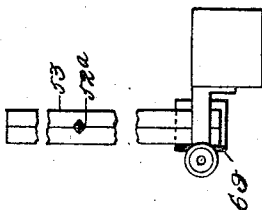


Fig. 11.

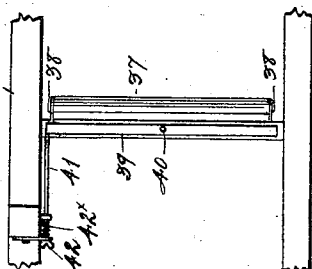


Fig. 14.

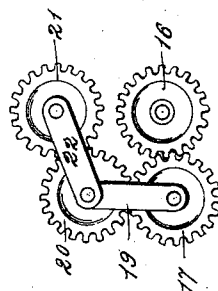
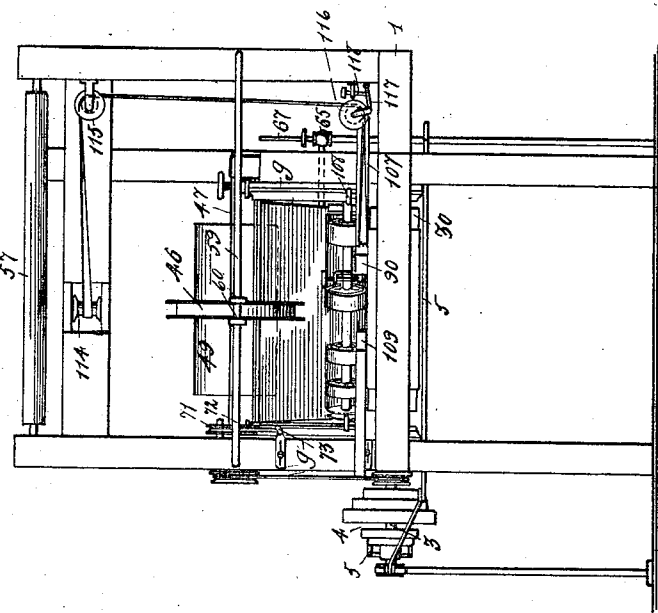


Fig. 10.



Witnesses

Geo. M. Anderson
Phillip Masi.

Inventor

A. L. Garver

By F. W. Anderson
his Attorney

UNITED STATES PATENT OFFICE.

ABRAHAM L. GARVER, OF ROARING SPRING, PENNSYLVANIA.

MACHINE FOR APPLYING BINDING-STRIPS TO BOOKS.

SPECIFICATION forming part of Letters Patent No. 542,156, dated July 2, 1895.

Application filed February 19, 1895. Serial No. 539,015. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM L. GARVER, a citizen of the United States, and a resident of Roaring Spring, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Applying Backing and Binding Strips to Books, Tablets, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a central vertical longitudinal section of the invention as adapted for applying the tape flat to books, the steam and water pipes for heating-tank being shown in dotted lines. Fig. 2 is a plan view of the invention as arranged for same purpose, the tape not shown. Fig. 3 is an enlarged plan view of front portion of machine as adapted for folding the tape around the edges of books, parts not essential to the illustration of this feature being omitted. Fig. 4 is a face view of tape-folding device. Fig. 5 is a detail of adjustable lip with spring secured to gage 109, said gage being shown broken away. Fig. 6 is a perspective view of spring-lip 102^a. Fig. 7 is a section on line *y y*, Fig. 4. Fig. 8 shows the work done by the machine when the tape is folded. Fig. 9 shows the work done by machine when the tape is applied flat. Fig. 10 is a front view of invention as arranged to fold tape, one of adjusting-arms of folding device being broken away. Fig. 11 is a detail of means for throwing apron to one side or the other. Figs. 12 and 13 are details of paste-distributing device. Fig. 14 shows the driving-gear for rolls 6 and 7. Fig. 15 is a section on line *x x*, Fig. 4. Fig. 16 is a detail sectional view taken on line *w w*, Fig. 5, to show the means for adjustment of the lip 110.

This invention relates to a machine by means of which a number of leaves or sheets of paper piled flat one upon another to be folded into signatures, and whether loose or stitched, or otherwise secured together, may be provided with a binding-strip either of cloth, leather, or paper applied to their backs

or binding-edges, as in the manufacture of pass-books, memorandum-books, composition-books, and such other books as are sewed through the center and afterward folded into a finished book.

The machine embodying the invention is also designed for use in the manufacture of that class of books which are sewed along one edge and then reinforced with a binding-strip; also in the manufacture of pads or tablets which are to be reinforced along one edge or along several edges with a binding-strip, or to books of whatever kind which are to be reinforced with a strip of cloth or similar material pasted thereon.

The machine may also be used for applying the strip to the fly-leaf of full-bound books, which strip is employed to reinforce the binding of such books.

With the object in view of providing a machine of the above-described character, which shall be capable of performing neat, accurate, and efficient work in a rapid manner, the invention consists in the novel construction and combination of parts, all as hereinafter described and pointed out in the appended claims.

In order that the detailed description of the construction and arrangement of the various parts comprising the machine may be more easily understood, I will first give an abridged description of the general operation thereof.

A binding-strip of cloth or paper or of whatever material is employed, which will hereinafter be referred to as the "tape," is prepared of the requisite width, which may vary from one-fourth or one-half inch to a width equal to the full covering of the book, and of a length which may be indefinite, or as much or more than several hundred yards. This tape is wound, mechanically otherwise, on a suitable reel which is placed on the forward part of the machine, and from which it is led through proper guides to a pasting device, and from thence by means of guides to a paste-distributing device. From this device the tape is carried over a series of guides and finally back to the front portion of the machine, and thence rearwardly, where it comes in contact with the books, tablets, &c., which are to receive it. Hereinafter the general term "book" will be employed to denote these ar-

ties, of whatever particular class they may be. These books or tablets are fed on by means of an endless traveling apron, which carries them between proper rolls and folding devices which apply the tape in the desired manner. The tape and the book meet in front of the folding or roll devices, and after passing through these the book is carried on by the apron and the tape severed at the proper points, either mechanically or by an operator. The books when fed in may be of the length and form of the finished book, or an indefinite number of books may be fed in all bound together and afterward cut into the proper single book size.

The term "paste" is used herein as signifying any material by which the tape may be made to adhere, glue being preferably employed.

Having thus given an outline of the operation, I will proceed to a detailed description of the several parts of the machine which perform these operations, making reference to the accompanying drawings, and to the reference numerals and letters thereon.

In the drawings, 1 designates a rectangular frame, resting on suitable posts or supports, and upon which rests the machinery and mechanism for the work. 2 is the floor or table thereof.

3 designates the main driving-shaft, which extends transversely underneath the table forward of the center of the machine, and which is provided with a cone-pulley 4, by which the speed of the machine is regulated.

5 designates a friction-clutch and clutch-operating device of any suitable character, by means of which the machine may be started slowly and regulated at the will of the operator. By starting the machine slowly and gradually increasing the speed to the requisite point, the danger of breaking the tape is avoided.

6 designates a large pressure-roll, which is carried by the driving-shaft 3, and which works in a transverse cut of the table. Immediately above this roll is a parallel companion roll 7, which is journaled in boxes 8, capable of a vertical sliding movement in the slots of cast frames or posts 9, which are bolted to the frame 1. Seated upon said boxes and confined in said slots are springs 10, which exert a pressure on said roll 7. Engaging each of said boxes 8 is a vertical screw 11, whose upper end projects above the frame 9, in which it has a bearing, and above which it is provided with a bevel-gear 12.

13 is a shaft which extends transversely above the roll 7, having at one end a hand-wheel 14 and carrying two bevel-gears 15, which mesh respectively with the bevel-gears 12 of the screws 11. By this means said roll 7 may be adjusted toward or away from the roll 6 to accommodate different thicknesses of books and whereby both ends of the roll are moved alike.

In the same end of the shaft 3 as its driv-

ing-pulleys is a gear-wheel 16, which meshes with a gear-wheel 17, whose journal 18 is connected by a bar 19 with the journal of a movable gear-wheel 20, whose teeth mesh with a gear-wheel 21 on the end of the journal of the pressure-roller 7, said journal and the journal of the wheel 20 being connected by a bar 22. By this arrangement the roll 7 is always kept in gear when raised or lowered. Other mechanical devices may, however, be employed for the same purpose.

The roll 7 is covered with rubber or felt, or with some other yielding material which will exert an even pressure on the books as they pass between the rolls 6 and 7. This covering is important in order to apply the tape evenly, it acting as a cushion for the book under the action of said rollers.

24 and 25 designate a pair of horizontal pressure-rolls which work one above the other a short distance in front of rolls 6 and 7. The upper roll 25 is journaled in vertically-movable boxes, acted upon by springs 26, and adjusted by means of independent screws 27 at each end, whereby one end may be adjusted more than the other for the purpose of giving the books as they pass said rolls a tendency toward lateral movement on one side or the other to bring them into more correct alignment with the tape and tape-applying devices. These two rolls are journaled somewhat obliquely with their left-hand ends in advance, for the purpose of further crowding the work toward the right. Each of said rolls 24 and 25 consists of a series of sections or broad-faced pulleys of different widths, which may be moved laterally on their journals and be secured by set-screws at the proper points to suit the work. For books of different widths the different width-sections are respectively brought into play. The roll 25 is driven by a belt 28 from the driving-shaft 3.

29 designates the endless belt or apron which carries the books to and through the pressure-rolls. This belt passes around a roll 30 at the front portion of the machine and is driven by a belt 31 or other connection with the shaft of the roll 24, the upper portion of the belt passing rearward above the table between the rolls 24 and 25 and 6 and 7, thence to a point on the table some distance back of the rolls 6 and 7, where it passes over a roll 32. From the roll 32 it passes downward over an adjustable roll 33, which may be moved by a screw 34, to adjust the tension of the belt, and from thence upward and forward to a roll 35, thence downward and forward to a roll 36 shortly to the rear of and some distance below the roll 6, thence up and over a roll 37 to the roll 30. The purpose of carrying the lower portion of the apron as described is simply to get it out of the way of other moving parts. The roll 37 is journaled in brackets or arms 38, carried by a transverse bar 39, fulcrumed at 40 to swing in a horizontal plane.

41 is a rod attached to one arm of the bar

39, and having a screw 42 by means of which it may be moved in one direction and acted upon by a spring 42^x to move it in the other direction when the screw is slackened. The purpose of this arrangement is to give said roll 37 such a degree of obliquity as may be desired in order to throw the apron toward one side or the other of the machine when necessary.

43 designates a gage or guide for the edges of the books as they are carried to the pressure-rolls, whereby they are maintained in the proper direction through the machine. Said gage or guide is carried by slotted arms 44, which may be adjusted back and forth, being secured by set-screws 45. The gage or guide may also be adjusted vertically by placing pieces under said arms or by other suitable means to suit books of different thicknesses.

46 designates the tape-wheel or reel on which the tape is wound preparatory to being applied to the books. This reel is of the desired width to suit the different widths of tape, and works upon the journal 47, which has suitable bearings on the frame 1. From this reel the tape, which is designated by the letter A, passes forwardly over a guide-roll 48, thence over a paste-roll 49, which turns in a paste-pot 50, thence underneath a guide-roller 51 just to the rear of the paste-roll, and which holds the tape closely to said roll; thence over a paste-distributing device 52; thence underneath a guide-roller 53, which holds it down to the distributing device.

From the roller 53 the tape passes to the rear of the machine, where it is carried under a roller 54; thence vertically up and over a roller 55. From the roller 55 it is carried forward again over an intermediate roller 56 to the front of the machine, where it passes over a roller 57, and takes a downward course to a roller 58, a short distance above the endless apron, having maintained throughout its entire course its position, with its adhesive surface away from all the rollers over which it passes. Between the rollers 57 and 58 is a transverse bar 59, having thereon two slidable collars 60, secured by set-screws, and between which the tape is guided. By adjusting these collars the tape can be guided accurately to the work. From the roller 58 the tape passes rearwardly below the reel 46, between the rollers 24 and 25, where it is in position to be applied. Between the rolls 24 25 and 6 and

7 is a transverse bar 60^x, having therein a series of holes, through which are dropped pins 61. These pins form means for further holding the tape in proper relation to the books, the series of holes providing means for adjustment to tapes of varying widths. The paste-pot 50 is provided with a steam-jacket 62, having a steam-inlet pipe 63, steam-outlet 64, water-inlet 65, water-outlet 66, and glass water-gage 67, to indicate the height of water in the tank or jacket.

68 is a scraping device which acts on the paste-roll, to remove any surplus of paste

which falls back into the pot. Said pot is supported in a raised portion of the frame, to the rear of the driving-shaft, and above the endless apron. The paste-distributing device 53, above referred to, consists of a bar secured transversely to posts of the frame directly in rear of the paste-roll, being usually formed of half-inch square cast-steel, placed with one angle uppermost, as indicated, which forms a scraping edge, against which the tape is closely held by the adjacent guide-rollers. In this scraping edge is formed a notch 52^a, which may be of variable depth and width, and which is to be located at the desired position transversely in the bar. As the tape passes over this scraper the latter removes all excess of paste from the tape, distributing it evenly over the under surface thereof, except at that portion which is over the notch, which will retain a larger quantity of the paste. This is important, from the fact that it is often necessary to have a surplus of paste on the tape where it comes immediately in contact with the book or bound edge of the book. 69 is an adjustable support for said distributing device, by means of which said device may be raised or lowered at the will of the operator.

70 is a sheave-pulley, by means of which a belt 70^a from the main shaft drives the paste-roller. Said paste-roller should be driven a little faster than the tape moves in order to rightly apply the paste.

71 designates a friction disk or pulley on the journal of the tape-wheel and over which passes a friction-strap 72, one end of which is attached to the frame and the other to a movable screw 73, whereby the tension of the tape may be regulated.

74 designates a pressing and feed roll, which is journaled over the rear end carrying-roll of the endless apron at the center of the cutting-off device. I do not in this application make any claim to any particular form of cutting-off device, since there are numerous forms which may be employed, or the cutting may be done manually. I have, however, indicated in a general way a form of such device which may be employed, and which is, briefly, as follows:

75 is a vertically-reciprocating knife-blade, carried by a bar 76 working in suitable lateral guides.

77 is a stationary blade which co-operates with the knife 75 to produce a shear cut.

78 is a rock-shaft fulcrumed transversely above the table on the lateral edges of the frame 1 and connected by means of arms 79 with the blade 75. Said shaft also has depending arms 80, which are arranged to be engaged by cams 81 of a rotary transverse shaft 82 underneath the table, and driven by a belt or sprocket connection with a second shaft 83, which in turn may be driven from the main driving-shaft by a belt or chain 84. By a proper arrangement of the gear and cams the knife 75 will be intermittently reciprocating.

cated at the proper intervals to make the cuts, a spring 85 returning the knife 75.

The gear on the shaft 83 may be provided with a clutch operated by trip and lever devices actuated by contact with the books, so as to throw the knife into and out of operation at the proper times. This arrangement is not, however, shown in the drawings, as it forms no part of the present invention and can be supplied by any skilled mechanic.

86 designates a second endless apron which receives the books from the cutter and delivers them at the rear of the machine. 87 and 88 are the carrying-rolls for said apron, and 89 is a pressing and feed roll above the roll 88 which sets the tape should it have been started from the book by the cutter.

The machine, as thus far described, is adapted for work similar to that shown in Fig. 9, or where the tape is to be put on in substantially flat form without folding.

The tape having been properly fixed and the work prepared, the machine is started, and the operator commences to feed the books onto the endless apron with their backs uppermost and their edges against the guide 43, which has been set to its proper place. The books travel rearwardly on the apron under the roll 25 (which for this kind of work is not in use, being raised out of the way). As the first book reaches a point in front of the rolls 6 and 7, it is brought in contact with the tape, and the book and tape pass through between the roll 7 and the endless apron and roll 6, said apron, which is of felt or other yielding material, forming a cushion for the book. The roller 7 being covered with felt, rubber, or similar material, as before described, exerts an even and gentle pressure on the tape, which makes it adhere firmly to the book, or, in other words, squeezes the book and binding-strip thoroughly together. Successive books are operated upon in the same manner. As the binding-strip travels a considerable distance after leaving the paste-roll before it is applied to the book, the paste becomes somewhat "set up," and is in proper condition to cause the tape to adhere to the book closely. After leaving the rolls 6 and 7, the books pass underneath the glue-pot, which, being heated, exerts a drying influence on the work. The books and tape pass on rearwardly and are separated by the mechanical device illustrated or by an operator, after which the books pass through folding devices. (Not shown in the drawings.)

For binding tablets or securing the tape around the edges of books or tablets in the manner indicated in Figs. 3 and 10, it becomes necessary to substitute for the guide 43 other devices for guiding the books and for folding and applying the tape thereto, and such devices will now be described.

90 designates a tape-guiding and tape-folding device, by means of which the tape is folded around the edge of and applied to the book. This device comprises an elongated

bar having upon its lower inner edge a lip or flange 91, which is of the following peculiar form.

Starting in at the forward end of the bar at X, it extends to the point Y, where it is cut off perpendicularly to permit the insertion of a vertical roller 92, which is journaled above and below in metal plates 93. Said lip or flange again starts at the point Z and continues obliquely upward to a point Z', thence horizontally to a point about midway of the length of the device to a small roller 94, whose axis is oblique, as shown, and opposite which is a second similar oblique roller 95. Beyond the rollers 94 95 the device is substantially a straight bar, having at intervals therein a series of vertical rollers 95^a, working in recesses and projecting only slightly beyond the surface of the bar.

96 is a small flange or strip, which guides the book and tape by the vertical roller 92.

97 designates a spring, which is seated in a slot in the back wall of the device between the roller 92 and the rollers 94 and 95. Said spring is made fast at its forward end, but is free at its rear end portion, in which is journaled a vertical roller 98.

99 is a set-screw, by means of which the tension of the spring 97 is regulated.

100 designates a yielding spring lip or flange over the horizontal portion of the lip or flange 91, being supported by a screw 101, working in a bracket 102, and providing for the vertical adjustment of said lip or flange to work of different thicknesses.

102^a designates a second adjustable lip, which commences at the rear end of the lip 100 and extends downward and rearward to a point over the rear end of the flange 91, at which point it has journaled therein the oblique transverse roller 95, before referred to as being opposite the similar roller 94. Said lip 102^a is supported by means of screws 101 and 103, working in brackets 102 and 104, and its tension or pressure is regulated by means of springs 105 bearing thereon. 105^a is a turned flange on such lip.

106 indicates where the device is cut away to permit it to pass between the pressure-rolls 6 and 7.

107 denotes the slotted arms which support the device, and which are capable of either vertical or horizontal adjustment by means of screws 108.

The various rollers referred to in this device are all provided with a yielding covering, such as rubber, felt, &c., to enable them to exert an even pressure on the work.

The upper surface of the flange 91 and the under surface of the upper lip 100 are preferably obliquely corrugated, as indicated, the direction of the corrugations being such as to work the tape closely to the book in the manner presently described.

109 designates a parallel gage for the opposite edges of the books, and which consists of an elongated bar supported by means of slot-

ted arms secured by set-screws. Fastened to the inner face of said bar at about its central portion is a lip 110, adjustably secured to gage 109 by means of set-screws 111. The idea of this lip is to keep the book firmly down on the endless apron while it is receiving the binding-strip. Otherwise the edge of the book might turn up and get over the gage. The adjustment of the lip is toward and away from the apron for different thicknesses of work, the adjustment for different widths being by means of the gage itself. The vertical flange of this lip 110 is longitudinally slotted to receive a spring 112, which is attached to the gage at its forward end, but which is free at its rear end, being regulated by a screw 113. By means of this spring the books are crowded into the opposite folding device. This gage and the folding device are substituted for the guide 43 for this class of work. It is also necessary to change the path of the tape as follows: The path of the tape is the same until it reaches the forward portion of the machine on its return course, where, instead of passing downward over the transverse guiding-rollers at the front, as before described, it is passed around a short vertical roller 114 at the upper portion of the machine, which gives it a lateral turn at right angles to its former path and makes a quarter turn or twist. Passing over a horizontal roller 115 at the right-hand side of the machine, it is carried downward and underneath a grooved roller 116. From the roller 116 it is carried to and through a slot in the back wall of the tape folder and guide and around the vertical roller 92 thereof, being again turned into edgewise position. The roller 116 is carried by an arm 117, hinged to a post of the frame, and which is capable of a vertical adjustment by means of a screw 118, whereby the position of the tape on the roller 92 is regulated in order to effect proper alignment or to cause more or less of the tape to be placed upon either side of the book.

I will now describe the operation for this class of work.

The books are fed on the apron as before, between the two gages or guides, the binding-edge of the book being toward the tape-folding guide, into which it is crowded by the opposite guide and its devices, before described. The tape-folding device and guide is adjusted to the table so that the upper surface of its flange 91 is of equal height with the endless apron, and forms a part of the surface along which the book travels. For this work the rollers 24 and 25 are in operative position and act as feeds to pull the work along and crowd it toward the tape-folder. As the tape passes the roller 92 in edgewise position and under the proper tension to the lip 91, it is turned at its lower edge portion toward the book in L-form, with its adhesive surface in position to receive the under binding-edge of the book, which meets it just beyond said roller 92. As the book and tape move on, the lip 100 presses

the book firmly down upon the tape. The upper edge of the tape has not yet been turned over, it passing between the inner edge of the lip 100 and the body of the device. The roller 98 next acts to press the tape gently but firmly against the back or binding-edge of the book. As the book and tape reach the turned flange 105^a of the lip 102^a, the upper portion of the tape is rolded down thereby against the upper edge of the book, and in passing between the oblique rollers 94 and 95 the tape is drawn closely against the binding-edge of the book and stretched tightly to the upper and lower surfaces thereof. The corrugated surfaces of the flange 91 and lip 102 also have the same drawing or stretching effect. The book now passes between the rolls 6 and 7, which securely set the tape, and this operation is further completed by the rollers 95^a as they pass onward between the guides to the cutter or point where the tapes are to be severed between successive books.

It will be observed that the various devices provided are so arranged that not only is the tape crowded toward and pressed upon the book, but the book is also firmly held to the proper course and is crowded onto the tape, resulting in work of a very accurate, neat, and finished character.

It will further be observed that throughout the entire machine there is great facility of adjustment to suit different sizes and forms of work.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for applying binding and backing strips to books, tablets and like work, the combination of an endless feed apron, the two positively driven pressure rolls one above the other, said rolls being made up of a series of broad faced sections which are capable of independent lateral adjustment on their shafts, means whereby one of said rolls may be adjusted vertically, means for carrying the tape or binding strip and for guiding it between said rolls above the apron, and means for applying paste to said tape or strip, substantially as specified.

2. In a machine for the purposes described, the combination with the endless, traveling feed apron, of the rolls 24 and 25 between which said apron passes, said rolls being each made up of a series of broad faced sections which are capable of independent lateral adjustment upon their shafts, substantially as specified.

3. In a machine for the purposes described, the combination with the endless traveling feed apron, of the parallel rolls 24 and 25 which are journaled one above and one below said apron, and in oblique relation thereto, said rolls being made up of a series of broad faced sections which are arranged to slide freely upon their shafts and can be independently adjusted thereon, substantially as specified.

4. In a machine for the purposes described, the combination of a paste pot, a paste roll turning therein, guide rollers for holding the tape in contact with the paste roller, and a distributor bar over which the tape passes after leaving the paste roll, said bar having in its otherwise plain edge a single V-shaped notch, substantially as specified.
5. In a machine for the purposes described, the combination with the endless feed apron, the rollers 24 and 25 journaled one above the other, the rollers 6 and 7, also journaled one above the other to the rear of the rollers 24 and 25, and the tape-guiding devices, of a tape folding and applying device, an adjustable gage parallel therewith and having an adjustable lip which holds the work to said apron, and a laterally acting spring in connection with said lip for pressing the work into said tape-folding and applying device, substantially as specified.
6. In a machine for the purposes described, the adjustable gage 109, having on its guiding face the vertically adjustable lip 110, the spring 112 attached to the gage at one end, and the tension screw for said spring, substantially as specified.
7. In a machine for the purposes described, the tape guiding and folding device 90, having the lower lip or flange 91, the upper lips 100, and 102^a, the tape guiding roller 92, and the series of rollers which press the tape against the binding edge of the work, substantially as specified.
8. In a machine for the purposes described, the tape-guiding and folding device 90, comprising an adjustable bar, having the lip 91 at its lower inner edge, the tape guiding roller 92, the yielding adjustable upper lip 100, the second adjustable folding lip 102^a, the oblique roller 95 carried thereby, its opposite and similar roller 94, the spring 97, the roller 98 carried thereby, and the series of vertical rollers 95^a beyond the rollers 94, 95, substantially as specified.
9. The combination with the endless feed apron, the rolls 24 and 25 journaled one above the other, and the rolls 6 and 7, also journaled one above the other to the rear of the rollers 24 and 25 of the tape folding and applying device, and the parallel gage, said device and gage extending between and to the rear of the said rolls 6 and 7, substantially as specified.
- In testimony whereof I affix my signature in presence of two witnesses.
- ABRAHAM L. GARVER.
- Witnesses:
WM. W. DAVIS,
J. H. WESTERFIELD.